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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,679

07/20/2006

Yoshio Mori

7378/88232

8088

42798 7590 03/03/2009
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EXAMINER

CORDRAY, DENNIS R

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

03/03/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/586,679	Applicant(s) MORI ET AL.	
	Examiner DENNIS CORDRAY	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/20/2006</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it has more than one paragraph. Correction is required. See MPEP § 608.01(b).

2. The disclosure is objected to because of the following informalities: on p 6, line 21; p 37, line 1; p 38, line 1; p 39, line 16 and p 41, line 14, the word "flocculationability" should be changed to "flocculation ability." On p 42, line 2, the word "beated" should be changed to "beaten."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites in lines 7-12 ...”an amphoteric polymer...(1) in combination with an amphoteric polymer...(2) or an amphoteric polymer...(3). It is not clear if the composition includes (A) both amphoteric polymers (1) and (2) or, alternatively, amphoteric polymer (3); or (B) amphoteric polymer (1) and either of amphoteric polymers (2) and (3).

Claim 6 recites “adding the retention aid of claim 5 to stuff.” It is not clear what the word “stuff” is intended to encompass. Is it the papermaking stock? Is it a pigment or filler composition? Is it the pulp? Is it the stuff box? Is it some other composition related to papermaking? It is further not clear how the stuff is used in the papermaking process.

Claims 2-6 depend from Claim 1 and inherit the indefiniteness thereof.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5 and 6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lindgren et al (US 2002/0100567).

Claims 1 and 6: Lindgren et al discloses a sizing dispersion or composition and a sizing promoter composition, which are added to an aqueous papermaking suspension followed by making paper (Abs; p 1, pars 1 and 10). The sizing composition comprises a sizing agent and dispersing or stabilizing agents, which can be amphoteric polyelectrolytes with an overall cationic charge or amphoteric polyelectrolytes with an overall anionic charge (p 1, par 12; p 2, par 14). The sizing promoter is added separately from the sizing composition to the suspension and comprises a cationic organic polymer having one or more aromatic groups and an anionic organic polymer

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having one or more aromatic groups. The polymers used in the sizing promoter can be the same polymers as used in the sizing composition, thus can be amphoteric polyelectrolytes with an overall cationic charge and amphoteric polyelectrolytes with an overall anionic charge (p 2, par 18).

The cationic and anionic polymers used in the sizing dispersion and sizing promoter are water soluble (p 3, par 26; pp 5-6, par 44). The cationic polymer is, in some embodiments, prepared by reacting (polymerizing) an amphoteric polysaccharide with cationic and aromatic monomers (p 4, par 31). The anionic polymer is, in some embodiments, prepared by reacting (polymerizing) a polysaccharide (which can be amphoteric, see above paragraph) with anionic and aromatic monomers (p 6, par 49).

Claim 1 is a product-by-process claim. The sizing promoter of Lindgren et al appears to be the same as or similar to the claimed product, a composition comprising at least one amphoteric polysaccharide having an overall anionic charge and at least one amphoteric polysaccharide having an overall cationic charge, although produced by a different process. The burden therefore shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir.1983). "In the event any differences can be shown for the product of the product-by-process claims 1 as opposed to the product taught by the reference Lindgren et al, such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of a showing of unexpected results: see also In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)"

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Claims 2, 3 and 5: The sizing promoter of Lindgren et al, added to a papermaking suspension or sludge, is capable of functioning as flocculant or retention aid because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent or, at least, obvious to one of ordinary skill in the art..

5. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al (WO 03/020829 A1, US 2004/0238454 in the same patent family used for English translation) in view of Chen (6454902) and further in view of Lindgren et al and even further in view of Tsai (5132284).

Mori et al discloses a composition containing amphoteric polymers, which comprising cationic, anionic and, if necessary, nonionic monomers. The composition comprises a combination of a first amphoteric polymer with either a second or a third amphoteric polymer, such that the numbers of cationic to anionic units in the combination of amphoteric polymers satisfy the same mathematical relationships as currently claimed (Abs; pp 2-3, pars 27 and 28). The composition is used as a flocculant, a sludge dewatering agent or a retention aid in papermaking (p 1, par 1; p 3, par 36). A process of dewatering sludge is disclosed, comprising adding the

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composition to sludge and dewatering (p 4, pars 42, 52 and 63; Claim 7). A process of papermaking is disclosed, comprising adding the composition to papermaking furnish and making paper (p 5, pars 72-75; Claim 18).

Mori et al does not disclose making the polymers by polymerizing a cationic monomer and an anionic monomer in the presence of starch. Mori et al does disclose that the amphoteric polymers may be any copolymer which contains a cationic monomer unit and an anionic monomer unit (p 2, par 17).

Chen et al discloses flocculating a papermaking suspension by adding to the suspension a first water soluble polymer selected from a water soluble polysaccharide or a synthetic polymer, then reflocculating the system by adding a siliceous material and a second water soluble polymer (Abs; col 2, line 55 to col 3, line 2). The first polymer is preferably cationic and can be a polysaccharide or a cationic synthetic polymer polymerized from nonionic, cationic and nonionic monomers (col 3, lines 28-37; col 4, lines 17-35). The second polymer is preferably anionic and can be a polysaccharide or an anionic synthetic polymer polymerized from nonionic, cationic and nonionic monomers (col 7, lines 26-33; col 8, lines 54-67; col 9, lines 19-39). Chen et al thus discloses that polysaccharides having cationic or anionic charge can be substituted for amphoteric vinyl copolymers in retention and drainage systems as functionally equivalent retention aids.

Chen does not disclose making the ionic polysaccharides by polymerizing a cationic monomer and an anionic monomer in the presence of starch.

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Lindgren et al discloses that polysaccharides having cationic or anionic charges can be made by reacting cationic or anionic monomers with amphoteric polysaccharides (p 4, par 31; p 6, par 49).

Tsai discloses a method of making an amphoteric polysaccharide having a neutral charge comprising copolymerizing a cationic monomer and an anionic monomer with the polysaccharide (Abs; col 4, lines 3-6 and 46-51; col 6, lines 42-59).

The art of Mori et al, Chen, Lindgren et al, Tsai and the instant invention is analogous as pertaining to polysaccharides having ionic charges and making the polysaccharides. The art of Mori et al, Chen, Lindgren et al and the instant invention is also analogous as pertaining to adding polysaccharides having ionic charges into papermaking suspensions. It would have been obvious to one of ordinary skill in the art to use water soluble polysaccharides having anionic or cationic charges as the amphoteric polymers in the composition of Mori et al in view of Chen et al and further in view of Lindgren et al and even further in view of Tsai as a functionally equivalent option with a reasonable expectation of success in obtaining flocculation, retention and/or dewatering. It would further have been obvious to make the anionic and cationic polysaccharides by copolymerizing anionic and cationic monomers with the polysaccharides as a method well known in the art for adding ionic charges to polysaccharide. While Tsai only provides neutral amphoteric polysaccharide, Lindgren teaches that cationic or anionic polysaccharide are obtained by reacting cationic or anionic monomers with amphoteric polysaccharide. Varying the amount of cationic and anionic monomers in the polymerization of an amphoteric polymer is well known in the

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art (see Chen, col 9, lines 19-35). Adjustment of the numbers of cationic and anionic monomers to provide cationic and anionic polysaccharides would also have been obvious to one of ordinary skill in the art, with a reasonable expectation of success.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS CORDRAY whose telephone number is (571)272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dennis Cordray/
Examiner, Art Unit 1791

/Eric Hug/
Primary Examiner, Art Unit 1791